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AUTHOR Chandler, Theodore A.; Pengilly, Joy
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ABSTRACT

The following hypotheses are being tested in a study of retention by college students of material low in meaningfulness: (1) divergent thinkers will recall more items from a nonsense syllable list and a non-related word list than will non-divergent thinkers because divergent thinkers spontaneously verbally mediate; (2) participants who retain more will be higher in internality and/or a sense of control over the outcomes of academic performance; (3) most participants will not spontaneously verbally mediate; and (4) a mnemonic device will be students' strategy of choice. Participants were 44 male and 60 female undergraduates who completed memory tasks and answered questions about their memory strategies. Subjects were randomly assigned to 1 of 3 lists/treatments (nonsense syllables, unrelated words, and related words), all of which contained 14 items of 3 letters each. Measures of divergent thinking and attributional assignment were also administered, as was a test of mental ability. In neither a median split nor a high/low third split were there significant differences in retention scores between those high and low in internality, stability, or a combined divergent production score. Analyses of components of divergent production and student strategies were not completed, but will be made. Implications for enhancing retention of these early findings are discussed. (SLD)

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USE OF MEANINGFULNESS IN RETENTION RELATED TO ATTRIBUTIONS AND DIVERGENT THINKING

Dr. Theodore A. Chandler
Kent State University

&

Joy Pengilly, Graduate Assistant
Kent State University

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Use of Meaningfulness in Retention Related to Attributions and Divergent Thinking

Dr. Theodore A. Chandler
Kent State University
And
Joy Pengilly, Graduate Assistant
Kent State University

Presenter:
Theodore A. Chandler
Ed. Psych. & Leadership Studies
405 White Hall
Kent State University
Kent, Ohio 44242-0001

Objectives

What strategies do college students use to retain material that is low in meaningfulness? What determines if students will spontaneously employ internal control in providing meaningfulness? Is it related to attributional assignment and/or divergent thinking? Is it related to mental ability? The following hypotheses were tested: (a) divergent thinkers in comparison to nondivergent thinkers will recall more items from a nonsense syllable list and from a nonrelated word list because they spontaneously verbally mediate; (b) participants who retain more will be higher in internality and/or in a sense of controllability over the outcome of academic performance; (c) the majority of participants will not spontaneously mediate; and (d) a mnemonic device (e.g., changing nonsense syllables into words; unrelated words into related words) will be used as the strategy of choice.

Theoretical Perspective

The more meaningful a task, the easier it is to remember (Underwood, 1972). In the case of remembering material that is lacking in meaningfulness, such as nonsense syllables, or in terms of relating words that are not typically related, a strategy may be employed (such as mnemonics) for more efficient encoding. Such a strategy becomes essential when the amount of material to be retained exceeds the seven plus or minus chunks of memory recalled by the typical person (Miller, 1956). Covert, mediating stimulus-response processes take place in the brain and intervene between a received stimulus and an overt response (Goss, 1961; Kjeldergaard, 1968). Kendler (1962) indicated that central processes, most importantly language, mediate between environmental stimuli and overt responses. It is anticipated (based upon 15 years data collected by the author) that the majority of college students will follow the expectancies of the meaningfulness literature, i.e., not employ an effective strategy and accept the lack of meaningfulness of the task. However, a minority of students will violate these expectancies, i.e., not accept the task meaningfulness (or lack of), and instead employ

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their own personal meaningfulness strategy. It is hypothesized that students are taking charge and perceiving control. According to Wittrock's (1978) generative model, cognitive learning occurs when learners construct or generate meaning for themselves out of what is presented to them. It is expected that these students will be internal in terms of locus of causality per attributional theory (Weiner, 1979). This means that one attributes a performance outcome to one's own self (e.g., skill, effort). One would expect these students to attribute successful test performance to internal, controllable and changeable dimensions. Belief in one's control or mastery in a stressful situation may lead to successful adjustment only so long as the situation is actually controllable or the illusory belief can be maintained (Shower & Cantor, 1985). Attributional preference may tell us who is likely to try mediation, but divergent thinking skills (e.g., fluency, flexibility, and originality) may tell us who is to be successful. Divergent thinkers have strategies that assist them in mediating connections to assist retention.

Method and Data Source

Participants consisted of undergraduate students (N = 44 males; 60 females) in the College of Education who volunteered. They were randomly assigned to one of three lists (treatments). All three lists contained 14 items of three letters each. List 1 was nonsense syllables (e.g., mul, tej, lup), List 2 was unrelated words (e.g., rag, red, fit), and List 3 was related words (e.g., mom, pop, son). These particular lists have been pre-tested on approximately 900 students and produce statistically significant differences in mean scores of retention. Students were told that they would be presented a list of 14 items and then given one minute to memorize the list followed by a 15-second delay. They were told that they will reproduce the list (in any order) on a provided answer sheet, immediately following the delay. Immediately following this experimental task, they completed a series of written questions that asked the following: How many items do you think you answered correctly? Rate the degree of your success/failure on the following 5-point scale (a Likert format with endpoints "very successful" to "very unsuccessful"). How were you able to remember as many items as you did, i.e., what specific strategy did you use to help you remember? Why did you use a strategy? If you didn't use a strategy, why didn't you? To assess divergent thinking the Christensen-Guilford Fluency Tests, Alternate Uses Test, and the Consequences Test were used to tap fluency, flexibility, and originality. To assess attributional assignment, a beliefs questionnaire related directly to the most recent class test indicated attributions for both perceived success and perceived failure. The Multidimensional-Multiattributional Causality Scale (MMCS), a standardized measure, was administered. To control for mental ability, a 12-minute timed, highly valid and reliable measure (Wonderlic) was administered. The entire experiment, including all assessments, took approximately 75 minutes. The analyses involved sets of multiple regressions and a multivariate analysis of variance. Analysis of covariance will partial out the effects of mental ability (scores on the Wonderlic) from scores on the retention task. In addition, t-tests were performed to test the hypotheses.

Results

The Wonderlic correlated .1961 (.05) with retention indicating that approximately 96% of the variance in retention is not accounted for by ability. Also, the Wonderlic correlated .1547 (N.S.) with the divergent measure, indicating that none of the variance in divergent thinking was accounted for by ability.

Since there was no significant difference in any of the scores for gender, the data were combined. In neither a median split nor a high/low third split were there significant differences in retention scores between those high and low in internality, stability, or a combined divergent production score.

Further analyses examining various components of divergent production (i.e., different types of fluency, flexibility, originality) and also a closer examination of other attributional components (i.e., controllability, achievement/affiliation) will be made. In addition, the specific strategies that students used and the results of the belief questionnaire will be further analyzed.

Because of the time constraints of data collection and analyses a complete examination of the data was not possible prior to the deadline.

Importance of Study

If we can encourage students to take charge of a nonsensical or boring task and accept responsibility for changing the task into something more meaningful, academic performance should increase. By emphasizing both one's effort and specific strategies, such as divergent thinking tactics, students may develop the skills to accompany the perceived control. By identifying some salient variables related to the strategy one uses to retain material, one may be able eventually to train students to be more efficient and efficacious. It is not sufficient to acquire the skills; one must think that s/he can use the skill and believe that it will make a difference.